Environmental Health Perspectives
Vol. 18, p. 73, 1976

Behavioral Teratology: Overview

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The field of teratology has expanded in recent years to include the effects of prenatal insult on the function of postnatal animals. This broadening of teratology reflects an awareness of the need to look for more subtle manifestations of developmental toxicity than gross morphologic changes. One aspect of postnatal function which is receiving a great deal of attention is called behavioral teratology and has to do with alterations in behavior and how they may be produced during development. There is some indication that behavioral changes can be produced at dosage levels behow those producing overt toxicity. Most of the information in this area comes from experiments with psychoactive agents (*1*), nutritional alterations (*2,3*) or ionizing radiations (*4*). More recently, environmental agents, including pesticides (*5,6*) and heavy metals such as mercury (*7*) and lead (*8*), have been tested for behavioral effects.

The use of behavioral tests as an integral part of the screening of new drugs and other agents is being discussed in this country, especially in light of recent regulations in Great Britain and Japan requiring such testing. However, before making decisions about requiring behavioral testing on a routine basis, a great deal of work must be done to develop adequate testing systems and the resources to carry out such testing. Since few laboratories have the funds or manpower available to develop such a broad approach for the purposes of screening new compounds, it is imperative that a concerted effort be made on the part of industry, academia and government to develop relevant testing procedures and that these procedures be made flexible so that changes can be made depending on the compound being tested.

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The presentations in this session address the question of what we know about the assessment of behavioral anomalies in animals treated in prenatal or early postnatal life. The use of behavioral testing as an adjusct to teratologic evaluations reflects our concern over the developing nervous system and its special susceptibility to toxic agents. This session considers the usefulness of behavioral testing in toxicology studies, animal models, and critical periods of brain susceptibility, and presently available test methods which may be adapted for use in behavioral teratology testing. The implications of test results for man will very likely be as difficult to resolve as for other aspects of toxicology evaluations but must be seriously considered in developing new test systems.

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